

Even harmful species may be treated with salt water and vinegar so that they may be made harmless, but this does not, to my mind, render them worthy of being classed with those that are edible without such treatment.

Very truly yours,

CHAS. H. PECK.

“We have now before us the question as to what constitutes edibility in a mushroom. As a natural food product, the mushroom must take its place with other vegetable growths, and it occurs to me that, if the subject were investigated, it would be found that many familiar foods are rendered nutritious by certain processes of cooking, without which they would be harmful.”

[The question of the edibility of certain noxious fungi has been raised before, for instance in regard to acrid species of *Lactarius* and *Russula*. Although experience has shown that proper treatment robs them of their power to do harm, and thus renders their substance a convenient vehicle for savory seasoning, prudence will always require, as Mr. Peck asserts in his letter to Mr. Wills, that such species, when there is no room for full notes upon them, be left in the non-edible list, and stigmatized as noxious. — ED.]

SOME UNDESCRIBED AND LITTLE-KNOWN VARIETIES OF ASTER AND SOLIDAGO.

M. L. FERNALD.

IN the study of the northeastern asters and goldenrods my attention has been called from time to time to some strongly marked varieties of well-known species which so maintain their characteristics that they seem worthy of varietal names. Careful study in the field leads me to consider all the forms here described extreme variations from more common specific types rather than distinct species. The forms of *Aster multiflorus*, *A. vimineus*, *A. puniceus* and *A. tardiflorus*, though habitally unique in their extremes, pass very clearly into the typical forms of those species. The last plant is one of several remarkably pubescent forms, as *A. longifolius*, Lam., var. *villicaulis*, Gray and *A. cordifolius*, L., var. *Furbishiae*, Fernald (Proc. Port. Soc. Nat. Hist. ii. 129), which occur on the banks of the St. John and other rivers of northern New England. The *Solidago*, though remarkably large, presents no apparent floral characters to separate it from the exceedingly variable *S. Virgaurea*.

Aster multiflorus, Ait., var. **exiguus**. A slender plant differing from the species in its flexuous branches terminated by solitary or rarely slightly clustered heads. — *A. ciliatus*, Muhl. in Willd. Sp. iii.

2027, not Walter, Car. 209. — Described by Muhlenberg from "North America." Collected by *W. W. Eggleston* at Norwich, Vermont, September, 1889; also in eastern Massachusetts, at Prides Crossing (*Miss Anna L. Jackson*), Lexington (*Miss E. L. Shaw*), and at Dedham (*C. E. Faxon*). These specimens agree very well with a sheet of Muhlenberg's species sent to the Gray Herbarium by Nees von Esenbeck. The var. *exiguus* might readily be mistaken for a small-headed *A. dumosus*, but it is quickly distinguished by its hispidulous-ciliate leaves and bracts.

A. VIMINEUS, Lam., var. **saxatilis**. Stem slender, 1.5 to 6 dm. high: leaves mostly ascending: the rather stiff very ascending or rarely spreading branches short (5 cm. or less), leafy-bracteate, terminated by solitary heads often 1.5 cm. across; or the branches longer with the heads solitary at the tips of the remote slender branchlets. — A characteristic plant of northeastern river-banks and ledgy shores, flowering from late July to early September. MAINE, ledgy banks of the Penobscot, Mattawamkeag, September, 1898, in fruit, Pushaw Bridge, Oldtown, September, 1897, Upper Stillwater, July 29, 1895, no. 361 (*M. L. Fernald*), Orono, August, 1881 (*Kate Furbish*); rocky banks of the Kennebec, Madison, August 21, 1894 (*M. L. Fernald*); ledges by the Androscoggin, Gilead, September, 1897 (*Kate Furbish*); Woodstock, August, 1887 (*J. C. Parlin*): QUEBEC, Pangan Falls, Gatineau River, Sept. 6, 1894 (*John Macoun*). — The northern representative of *A. vimineus*, var. *foliolosus*, Gray, for which it has generally passed. That variety, however, as understood by Dr. Gray and as shown by his specimens, is a taller plant with more spreading and elongated branches, the much smaller heads more abundant and on shorter branchlets.

A. PANICULATUS, Lam., var. **cinerascens**. Stem slender, 7 to 9 dm. high, closely covered, especially above, with short cinereous hirsute pubescence: leaves dull green, thick, lanceolate, acuminate, with slightly clasping bases, strongly scabrous on the upper surfaces, scabridulous beneath and sparingly pubescent on the veins; margins entire or with closely appressed teeth: panicle ascending, with many medium-sized heads: involucre about 5 mm. high; the linear-attenuate appressed 4- or 5-seriate bracts with distinct green midveins, dark subulate tips and scarious sciliate margins: rays linear, pale lavender, about 1 cm. long. — Collected in a damp thicket at Veazie, Maine, Sept. 15, 1897 (*M. L. Fernald*). A plant with the inflorescence of *A. paniculatus*, and apparently a form of that species; but in its cinereous pubescence suggesting *A. undulatus*.

A. TARDIFLORUS, L., var. **vestitus**. Similar to the species: the stem densely villous; the leaves somewhat so beneath. — Gravelly shores and low thickets, northern and central Maine, and in the Franconia region of New Hampshire. MAINE, Dover, Sept. 1, 1894, Sept. 19, 1896, Van Buren, Sept. 11, 1896, Masardis, Sept. 8, 1897 (*M. L.*

Fernald) : NEW HAMPSHIRE, Lovers' Walk, Lisbon, Oct. 4, 1887, Sept. 17, 1888, Littleton, Sept. 15, 1888, Wallace Hill Road, Bethlehem, Sept. 19, 1888, near Profile House, Sept. 22, 1888, etc. (*E. & C. E. Faxon*). Passing imperceptibly through less pubescent specimens to the glabrous form.

A. PUNICEUS, L., var. **compactus** (*A. puniceus* × *tardiflorus*, var. *lancifolius*, Fernald, Bot. Gaz. xxi. 278). Further study of this plant, both in the field and in the herbarium, has shown it to be a very characteristic form of *A. puniceus*. In the fall of 1896 an extensive area was examined by Mr. Walter Deane and the writer, on the banks of the Mystic River in West Somerville, Massachusetts, where this plant was very luxuriant and predominated over all other species. The plants were evidently fertile, and, though a careful search was made, no specimens of *A. tardiflorus* or its var. *lancifolius* could be found in the region. During the same year the plant was collected by Mr. Robert Cameron in Northampton, Massachusetts; in the fall of 1897, Mr. J. M. Greenman secured it at Walpole, Massachusetts; recently Miss E. L. Shaw has called my attention to it in Lexington, and Dr. G. G. Kennedy has shown me specimens collected by him at Milton, in 1894. A plant from New Haven, Connecticut, collected by Mr. A. L. Winton, is also very near this variety.

Only at the original station for this plant, at Ashland, Massachusetts, has *Aster tardiflorus*, var. *lancifolius* been found with it. There these two plants and typical *A. puniceus* were collected together in 1878 by the late Dr. Thomas Morong; and it was this evidence which first suggested that the plant was a possible hybrid. In view of the extensive range of the plant, its almost general isolation from one or both of the supposed parents, and its tolerably constant characters, there seems little ground to regard it a hybrid. On the other hand, though the typical form of the plant is quite unique in habit, many forms occur which connect it directly with true *A. puniceus*. For this reason it seems best to treat it as a variety of this species. *Aster puniceus*, var. *compactus* was described as a hybrid in the Botanical Gazette, and there is little to add to the characterization as there published. Its characters may be briefly summarized as follows: —

Stem stout, hispid: leaves very thick, narrowly sub-rhomboidal in outline, with unequal coarse often spreading teeth: branches of the inflorescence generally distinctly shorter than the large upper leaves, monocephalous or with many compactly clustered large violet heads, about 1 cm. high (not 4 to 6 in. as accidentally printed in the original description).

Among some plants brought by Mr. Robert Cameron in 1896 from Northampton, Massachusetts, to the Harvard Botanic Garden was a hispid form of *Aster puniceus*, in inflorescence somewhat resembling the var. *compactus*, but with the lanceolate leaves much narrower than

in that form, and even more elongated than in the ordinary broadly branching *A. puniceus*. This narrow-leaved plant is identified without hesitation with Lindley's var. *demissus*, described and figured in the Botanical Register. Other specimens have since been examined from central Maine, though in these the elongation of the leaf is not so striking as in Mr. Cameron's plant. The var. *demissus* may be briefly described as follows:—

A. PUNICEUS, var. *DEMISSEUS*, Lindley, Bot. Reg. xix. t. 1636. Stem hispid as in the species: leaves elongate-lanceolate with scattered coarse teeth: inflorescence much as in var. *compactus*.—In low ground, either with the species or by itself, Somerset County, Maine (*F. F. Collins*); Orono, Maine (*M. L. Fernald*); Northampton, Massachusetts (*Robert Cameron*).

Another striking form of *Aster puniceus* has recently been described by me in the Ottawa Naturalist (xiii. 105) as var. *oligocephalus*. This is the smoothish few-headed form of Oakes Gulf and Tuckerman's Ravine, with conspicuous foliaceous outer bracts. It occurs also on the northern shore of Lake Superior and in Newfoundland and Labrador.

The following key to the New England forms of *Aster puniceus* may be of assistance to students of the group:—

- Branches of the inflorescence, in well-developed plants, much exceeding the subtending leaves.
 Stem conspicuously hispid: leaves oblong-lanceolate, regularly but remotely serrate, hispid on the midribs beneath: involucre bracts long-attenuate
 *A. puniceus*, L.
 Stem glabrous or sparingly hispid above: leaves lanceolate, glabrous beneath.
 Leaves sharply serrate: inflorescence mostly loose and open-paniculate:
 involucre bracts long-attenuate . . . *A. puniceus*, var. *laevicaulis*, Gray.
 Leaves entire: heads thyrsoid-paniculate on elongated leafy branches:
 involucre bracts less attenuate . . . *A. puniceus*, var. *lucidulus*, Gray
- Branches of the inflorescence shorter than, or slightly exceeding, the subtending leaves.
 Stem conspicuously hispid: leaves coarsely and irregularly toothed: heads many, crowded: involucre bracts all attenuate.
 Leaves elongate-lanceolate, hispid on the midribs beneath
 *A. puniceus*, var. *demissus*, Lindl.
 Leaves sub-rhomboidal, smooth or sparingly hispidulous on the midribs beneath *A. puniceus*, var. *compactus*, Fernald.
 Stem glabrous, or sparingly pubescent above: leaves lanceolate or oblong-lanceolate, entire or subentire, glabrous and somewhat lucid beneath: heads few or solitary, usually subtended by leafy bracts, and with foliaceous outer involucre bracts . . . *A. puniceus* var. *oligocephalus*, Fernald.

SOLIDAGO VIRGAUREA, L., var. **callicola**. Stems clustered, erect, about 1 m. high, purplish, glabrous below, puberulent and somewhat glutinous above, simple or with a few erect branches, very leafy throughout: lower stem-leaves 1 to 1.5 dm. long, broadly oblanceolate, acuminate, sharply and irregularly serrate above the middle, entire

below, narrowed to a conspicuous broad-winged petiole-like portion; upper leaves long-acuminate, serrate above, somewhat narrowed to a sessile base, all rather large, 0.5 to 1 dm. long, 1 to 3 cm. broad: inflorescence ample, dense, thyrsoid-paniculate: involucre 5 to 7 mm. high, the short outer bracts ovate-lanceolate, the inner oblong-linear, all blunt, or rarely acutish: achenes sparingly pubescent. — In damp woods, with *S. macrophylla*, Pursh, near the boundary between Limestone, Aroostook County, Maine, and Grand Falls Township, Victoria County, New Brunswick, Sept. 10, 1896 (*Robert Cameron* and *M. L. Fernald*). A handsome plant unlike other American forms of *S. Virgaurea* in its very tall stature and large upper leaves, which, with the dense inflorescence, give it a general resemblance to large forms of the more southern *S. Elliottii*. A fine clump of this large variety has flowered profusely in the Harvard Botanic Garden for three seasons.

GRAY HERBARIUM.

ON THE FLORA OF MT. ABRAHAM TOWNSHIP,
FRANKLIN COUNTY, MAINE.

C. H. KNOWLTON.

MT. ABRAHAM township is crossed by the forty-fifth parallel of latitude, and contains the range of mountains bearing on the maps the name of Mt. Abraham. It is uninhabited, and heavily wooded except in the higher regions. The range consists of three parts, two of which form the horseshoe-like mountain known as Mt. Abraham. The third part, next to Redington plantation, is called Bald Mountain, and is the highest portion of the range. The part of Mt. Abraham proper which is nearest to Salem is wooded nearly to the top; the other two peaks are bare. Deep valleys or "sags" separate the three parts from each other. The altitude of the mountain is nominally thirty-eight hundred feet, though it may never have been accurately measured.

It was my privilege to explore this township botanically, July 3-6, 1899, and the flora proved very interesting. The slopes of the range were heavily wooded, principally with *Betula papyrifera*, *B. lutea*, *Abies balsamea* and *Picea rubra*, the fir appearing to be more abundant than the spruce. There was an undergrowth of *Acer spicatum*, *Pyrus Americana*, *Amelanchier oligocarpa*, *Nemophanthus fascicularis* and *Ribes prostratum*. *Acer rubrum*, *Cornus alternifolia* and *Taxus Canadensis* were occasional on the lower slopes, *Sambucus racemosa* and *Viburnum cassinoides* toward the top. The mossy woods were full of